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SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF E. O. 11652, AUTOMATICALLY DOWNGRADED AT TWO YEAR INTERVALS AND DECLASSIFIED ON
31 December 1979
(insert date or event)

DCI/IC 73-0847
8 August 1973

MEMORANDUM FOR THE RECORD

SUBJECT : COINS Files

REFERENCES: a. Memo for [redacted] Subject: COINS Files; dtd 3 Aug 73; Handle Via COMINT Channels 25X1

b. IHC/USIB Inventory of Community Information Handling Systems; Secret, Annex A to IHC-AR-5; 1 Aug 72

c. Draft paper from Messers. [redacted] for a Council for International Economic Policy from the Joint SIC-EIC USIB Working Groups; Secret 25X1

1. Ref A, para 1 - Agree. Ref A, para 2. The DIA SINO-SOVIET AIR ORDER OF BATTLE (SIAOB) is on the DIAOLS/COINS system. Some of the files marked with paper clips (Ref B, Att A) includes items that should be available to the community. Some of the systems should probably be connected to the COINS/IDHS network (e.g., AF CIRCOL). Some of the files rather than being rewritten to be put "on-line" should be made available by remote request and outputs furnished by batch medium speed printout. Another alternative is to make an index available on COINS regarding what is available, where it is located and how this information may be obtained. Some of the items marked in Att A with a paper clip include biographic files.

2. Ref C, Att B, is a draft paper that the Joint SIC (Scientific Intelligence Committee) and the EIC (Economic Intelligence Committee) has prepared on the computer industry/technology in Hungary and Poland. Other studies for the USSR and PRC have been prepared. Perhaps an index of what is available and where and how it may be obtained would be useful on the COINS.

3. Ref A, para 3 - Agree. Computer files are expensive to build and expensive to update and should only be put on-line when the need and timeliness of

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the information so dictates. Therefore, I am not advocating that the items discussed in this memo be put on COINS but that the COINS Files Working Group consider these items.

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[redacted]

Chief, IHC Support Staff

Atts (2)

Distribution:

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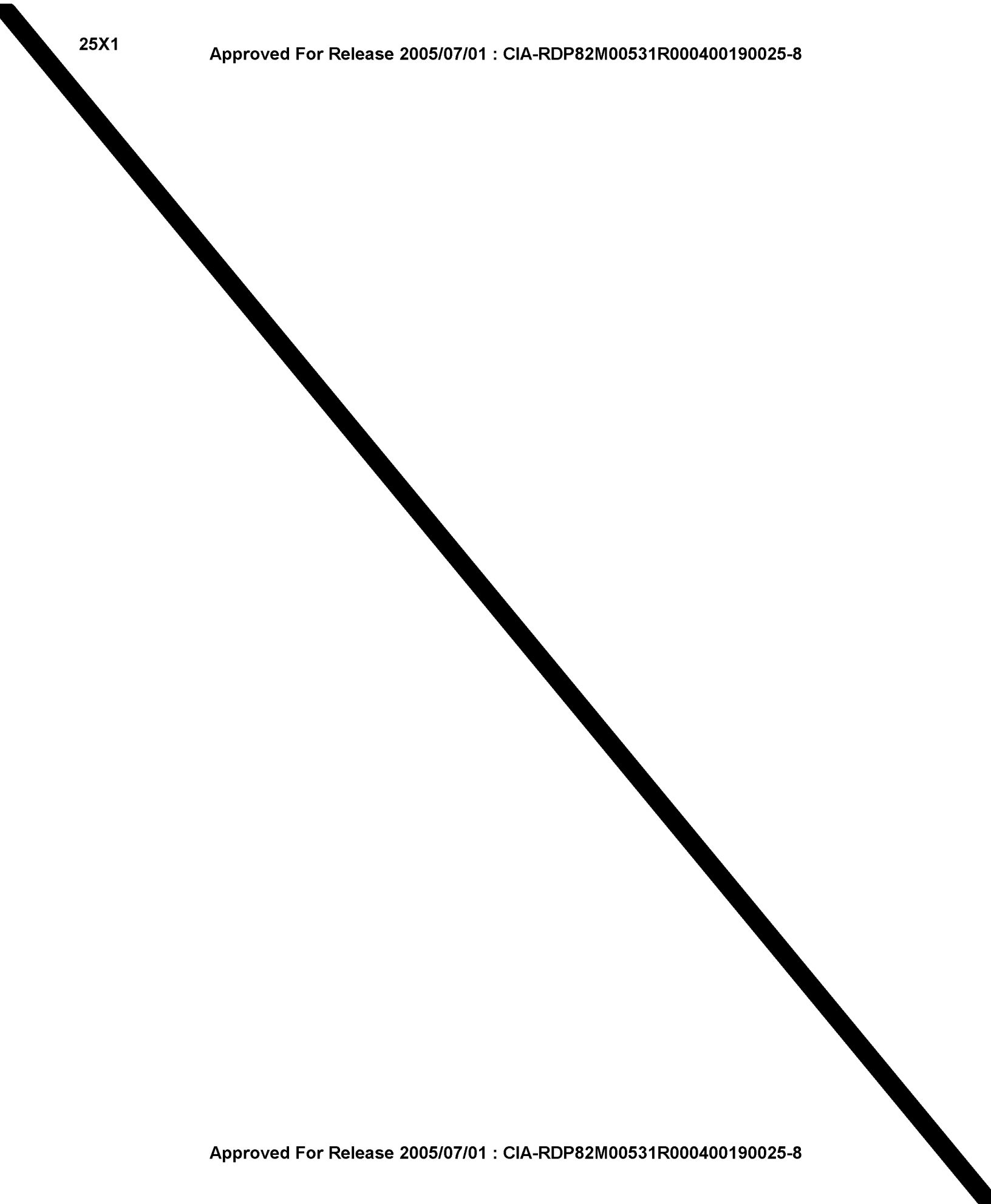

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Bulgaria

Bulgarian computers of domestic design have been confined to some analog types using vacuum tubes, and more recently a few small models of transistorized analog computers. The current inventory of about 60 digital computers consists entirely of imported models or models assembled under license. Heavy reliance has been placed on imported parts, designs, and technical know-how to supplement a small technical base in efforts to build digital computers and related equipment for both domestic uses and for exports. Imported parts have been used for assembly of 7 or 8 of the Bulgarian ZIT 151, which is a licensed version of the Japanese Facom-230-30, and about 20 of these Japanese computers have been imported fully assembled. The ZIT-151 has internal storage capabilities and arithmetic speeds comparable to the IBM-360/30 but is inferior to the latter in overall computing capabilities. One ZIT 151 also has been exported to the USSR.

Only two computers exceeding the COCOM "easy access" guidelines have been imported, the Facom 230/45 at the Ministry of Supply and an ICL 1904A at the Management Training Center. A few medium scale Western computers such as IBM 360/30 and 360/40 and ICL 4-40 and 4-50 models also have been imported but most of the imports have been small scale types. Uses have been primarily in data processing for

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economic and industrial applications and in civil scientific and engineering applications.

The main Bulgarian effort now is on collaborating with the USSR to achieve production of the ES-1020 model in the RYAD series of computers and related peripheral equipment. Bulgaria has constructed a prototype of the ES-1020 (called the IZOT 320 by the Bulgarian plant) and is now attempting to overcome continuing parts supply problems and initiate serial production.

Probably with the goal of maximizing potential exports to other CEMA countries, Bulgaria has concentrated peripheral device efforts on a magnetic tape unit, a magnetic disc unit, disc packs, and a typewriter for the RYAD computers. The disc unit project, which appears fairly successful, is typical of the heavy employment of imported technology. Production equipment comes from Czechoslovakia, and an IBM 360/30 is used to check out the units. Although plated wire storage devices are being made and licenses for semiconductors have been acquired from Japan, Bulgaria's component capabilities still appear primitive.

In addition to aiming at potential CEMA country markets, Bulgaria also is seeking Western markets for their computer products in order to finance imports. Over the next few years, Bulgaria is apt to continue needs for imports of components and production technology, but imports of completely finished end products is apt to be minimal.

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Hungary

Hungary lagged well behind other East European countries in starting domestic construction of computers but, with the application of imported Western designs, technical assistance, and parts, has made rapid progress in establishing a domestic computer industry. Currently, Hungary has a total of 180-190 computers, half of which are domestic or Communist country products including 50-60 small models of domestic origin. The largest and most advanced computers in Hungary are Western models such as the US CDC-3300 and IBM-370/145 and the UK ICL-4-70 and ICL 1904.

The first domestically designed computer in Hungary was the EMG-830 developed in 1968-69 by the Electrical Measuring Equipment Plant in Budapest. They made about a dozen of these transistorized models which had capabilities roughly comparable to those of the CDC 3100 (storage capacity of 8 to 32 K 24 bit words and a data processing rate about .6 megabits). This computer was not successful because it was technologically obsolete when it was developed and the Plant turned to building the EMG-810 computer employing imported integrated circuits. This was a very small scale computer, a licensed version of the French CII-10010, and work on it and follow-on models was shifted to the Videoton Plant.

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Current Hungarian production model computers are all small scale or minicomputers with capabilities similar to Western models. The Videoton Plant acquired French designs for the Mitra 15 which with French technical assistance and training, was used to make the VT-10010/B. This latter computer, also called the ES-1010 is Hungary's model in the Ryad series. The Videoton Plant, in collaboration with the Central Physics Research Institute, also produces the TPA models of minicomputers. These minicomputers have gone through 3 revisions since the first was developed in 1968 on the basis of design information on the US Digital Equipment Corporation's minicomputers. US integrated circuits were used in the TPA minicomputers. Several of the Hungarian minicomputers have been exported to the USSR and further exports to all the CEMA countries are anticipated.

Western peripheral devices have been used with most Hungarian computers and also with some computers imported from the USSR, but Hungary now is producing several types of peripherals. The Hungarian Optical Works makes punched tape and card equipment and, on the basis of a French license, a small fixed magnetic disc unit for use with minicomputers. Hungary also makes display devices and equipment for using communications links to transmit data between computers. In addition to intended uses with computers in Hungary, the display and

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data transmission equipment probably will be exported to other CEMA countries and could prove significant in enhancing capabilities for implementing computer networks.

Hungary still is dependent on imports for some types of components but is making some types such as ferrite cores for both domestic uses and export. Production of integrated circuits based on Western designs, equipment and assistance also has begun and priority is placed on getting further imports of a similar nature to expand this capability. Plated wire storage devices also are being made. Labor management problems, particularly in the area of labor morale, still appear to plague the component industry.

In spite of a continuing emphasis on software over the last several years, problems continue. Hungary was one of the first of the Eastern European countries to establish central repositories for computer programs and in publishing periodicals listing programs available at the various installations. Sharing of software has, however, been handicapped by the wide diversity of computer models used, but some of these problems may be alleviated as more of the computers in the Ryad series become available.

As it has in the past, Hungary continues to make use of every opportunity for using foreign sources of computer training. These include training given by Western vendors in Hungary, training

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programs by companies in Western Europe, training at facilities in other CEMA countries, and training the West under United Nations auspicies. The International Training Center established by the United Nations in Hungary also is considered an important asset which is to be supplemented by domestic training programs. Considerable further Western assistance is apt to be sought to implement the Hungarian training plans.

The main Hungarian needs for computers in the near future are apt to be for many small and some medium scale models but only a few large scale models. Emphasis will be on minimizing imports of Western finished end products while meeting needs from domestic and other CEMA country sources, but efforts to obtain Western equipment for production and technical know-how are apt to continue unabated.

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Poland

Poland has been the most successful of the Eastern European countries in developing and producing computers. Much of this success derives directly from the Western assistance that has been supplied Poland in the form of components, peripheral equipment, licenses, production equipment, technical know-how and training. The leading Polish computer producer, the ELWRO Plant in Wroclaw completed more than 500 computers by the end of 1972, of which about 60 were exported to the USSR, about 140 to other Communist countries, and a few to underdeveloped countries. The total Polish inventory of about 525 digital computers consists mostly of small to medium scale models from domestic sources and from other Communist countries with a few medium to large scale models from the West.

Large Western computers in Poland include the IBM 360/50 and 370/145 models, the ICL 4/70, and most recently the CDC Cyber 72-14 which is to be the central unit in a multiprogramming system called Cifronet that will serve remote terminal equipment at eleven academic, research and planning establishments. Eventually this system is to be incorporated into a national network of interconnected computer facilities.

The largest and fastest Polish current domestic production model computer is the ODRA 1305 which employs integrated circuits

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and which like its predecessor, the 1304, employs the logical architecture and software of the UK ICL 1900 models. With a maximum internal storage capacity of 256 K 24 bit words, the ODRA 1305 exceeds the COCOM "easy access" guidelines and its data processing rate is near the 8 megabits of the guideline cut-off point. The Elwro plant, which makes the ODRA-1305 for general data processing uses, also is producing the ODRA-1325, which has lesser capabilities and is intended for industrial control uses. Plans call for 50 ODRA-1305 models to be made in 1973 and for a total of 500 to 600 of a combination of ODRA-1305 and 1325 computers by the end of 1975. Currently some Western components and peripherals are used for the ODRA computers.

Poland is engaged also in the CEMA countries' development of the Ryad computers. Poland and the USSR are to produce the ES-1030 model, which approximately equals the IBM 360/40 model. The Polish ES-1030 is still in prototype although the USSR claims to have their version in production. Poland plans to acquire smaller and larger models of the Ryad computers from other CEMA countries and already has signed a contract for import of ES-1020 computers. Production of the ODRA computers will continue until Ryad computers in sufficient quantities to satisfy needs are available. Poland already has started to produce and export peripheral devices that are claimed to be compatible with both the ODRA and Ryad computers.

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The Institute of Mathematical Machines (IMM) in Warsaw also has developed several models of computers, but planned quantity production could not be achieved probably because attempts to incorporate advanced concepts led to design complexities that were beyond Polish industrial implementation abilities. The last model from the IMM, prior to its dropping hardware development and concentrating on logical design and software work, was the ZAM-51. This is a fairly slow small scale model (8 to 16 K of 24 bit words storage and 20 microsecond add time) and only about 17 out of a planned production of over 75 were completed, but several of these were installed in Polish military facilities.

Probably the most technically advanced of current Polish computers is a minicomputer which is constructed of components imported from the UK and offered for export to both Free World and Communist countries. This computer called the K-202 appears to be competitive with Western made minicomputers and superior to the minicomputers reported to have been developed in the USSR.

Applications

Polish military interests participated in some of the earliest Polish computer developments and the military has maintained a strong interest in the use of computers. Various academies and staff schools have used computers of Polish or Soviet origin for training and for military planning and gaming problems. Fragmentary information indicates

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that modified versions of Polish computers and related equipment have been van mounted and used in experiments with command and control and battle monitoring systems. Military authorities have displayed a continuing interest in establishing tactical data systems and are collaborating with other CEMA countries as well as continuing independent efforts on such systems. There also are plans for installing computers in hardened facilities for Party and government offices. No use of Western computers in military systems is known, although at least one British computer has been used for military-related missile design problems and another small old Western computer was used for some military logistics planning problems.

Peripheral Hardware and Components

Formerly, much of the input-output and auxiliary equipment used with Polish computers was imported, but Poland has been quite successful in acquiring and applying Western licenses and technical assistance to advance domestic capabilities for such equipment. It continues to seek licenses for all new types of peripheral equipment and components. Currently Poland is producing and exporting line printers made on a UK license. It has in production magnetic tape units, core memories, paper tape units, cathode ray tube display devices, and magnetic drums which are competitive with the best currently available from other CEMA countries and which have characteristics comparable to the lower performance of similar types of equipment

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marketed by Western manufacturers. Poland is agressively seeking Western as well as CEMA country markets for their peripheral equipment. Domestically developed magnetic recording heads also are in production and 80% are intended for export with 40% going to CEMA and 40% going to capitalist countries. Poland also is unique among the East European countries in producing such products as special floors and air conditioning equipment for use in computer installations.

Imports of significant quantities of some types of electronic components still are required but Poland is making effective use of imported equipment and technical assistance to expand rapidly domestic capabilities for making electronic components. An integrated circuit plant with French equipment is operating at partial capacity and soon will go to full capacity operation. Designs for the Logica-2 integrated circuits for the Ryad computers have been acquired from the USSR for production in Poland. Licenses, equipment, and technical assistance for MOS and other integrated circuits also are being sought and Poland plans to be self sufficient in integrated circuits by the end of 1974. It is doubtful that this plan will be realized fully, but sharp reductions in the quantity of electronic component imports are likely. Imports are likely to be concentrated on licenses, production equipment and technical know-how.

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Poland is attempting to pattern provisions for maintenance of both software and hardware along lines that have proved successful in the West and was among the first of the CEMA countries to offer such support on a continuing basis with their computers. Some centralized provisions for training of users of their computers also have been established but these still are reported to be inadequate. Provisions also are being established to permit leasing rather than outright purchase of their computers. Various organizational schemes for the Polish computer industry have been tried and changes are apt to continue as solutions are sought for continuing organizational problems. Poland has been more successful than other Eastern European countries in gaining some degree of homogeneity among the computers at substantial numbers of installations, and this could prove an important asset in solving some computer support problems.

The Polish goal is to be able to meet all their computer needs from domestic sources and from imports from other CEMA countries by the end of 1975. Even though they have been successful in acquiring considerable Western technology to use in establishing their industry, it is doubtful that their goal will be realized fully in the stated time frame but they are likely to seize every opportunity to minimize imports of end products.

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Remarks:

Shirley: If you need Att A ~~to~~ this document, you'll have to ask Records Center to send you one. Lynn had you order 3 cys of Annex A to IHC-AR-5 per Jackson, but that wasn't enuf cys. If you do ask for more, please ask for 5 & I'll hold some here.

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